

22nd GLOBE Annual Meeting
 01 July 2018
 The Brehon

- 8:30 am - Welcome - Banquet Suite 1
 Dr. Tony Murphy and Dr. Julie Malmberg, GLOBE Implementation Office
 Dr. Brandon Jones, National Science Foundation (NSF)
 Dr. Lin Chambers, National Aeronautics and Space Administration (NASA)
 Kia Henry, U.S. Department of State
 John McLaughlin, National Oceanic and Atmospheric Administration (NOAA)
- 8:55 am - GLOBE Implementation Office Report - Banquet Suite 1
 Dr. Tony Murphy, GIO
- 9:20 am - SSAI Report - Banquet Suite 1
 David Overoye, SSAI
- 9:45 am - Working Group Reports
 Education: Jessica Taylor
 Evaluation: Dr. Nektaria Adaktilou
 Science: Dr. Mullica Jaroensutasinee
 Technology: Elżbieta Wołoszyńska-Wiśniewska
- 10:45 am - Break

Concurrent Sessions:

To align with the GLOBE Strategic plan, sessions will correspond with the following themes:

- Science (Sc)
- Technology (Te)
- Education (Ed)
- Community (Co)
- Communications (Cn)

Location	Banquet Suite 1	Banquet Suite 2	Park Suite	Munster
Themes	Technology and Science	Education	Communications and Community	Education
11:00 AM	AM.Sc.1. How Cool Was the 2017 Eclipse, and What's Next? Lead Presenter: Kristen Weaver	AM.Ed.1. Taking Data to the Next Level: "Water in Our Environment" and H2you Project Lead Presenter: Laura Kubiak	AM.Co.1. Using Globe protocols to overcome the 'Not in my backyard' phenomenon Presenter: Francis Wasswa Nsubuga	AM.Ed.8. Helping More Teachers Do GLOBE Through a Five-week Unit About Weather Phenomena Lead Presenter: Becca Hatheway
11:15 AM			AM.Co.2. GLOBE at a US National Estuarine Research Reserve Presenter: Peggy	

			Foletta	
11:30 AM	AM.Sc.2. A new soil moisture probe for the GLOBE program and citizen scientists Lead Presenter: Peter Falcon	AM.Ed. 2. Engaging college students (pre-service, science and engineering) in GLOBE through undergraduate classes Lead Presenter: Kevin Czajkowski	AM.Co.3. GLOBE-Certified Teachers: How to increase their participation? Presenter: Sara Mierzwiak	
11:45 AM	AM.Sc.3. GLOBE Carbon Cycle Presenter: Jennifer Bourgeault		AM.Co.4. Developing a STEM Curriculum of Place for Teacher Candidates Presenter: Kevin O'Connor	
12:00 PM - 1:00 PM	LUNCH	LUNCH	LUNCH	LUNCH
1:00 PM	AM.Te.1. Aquire-Analyze-Apply (A^3) Lead Presenter: John Moore	AM.Ed.3. Full STEAM Ahead with GLOBE Science Lead Presenter: Jenn Paul Glaser	AM.Cn.1. GLOBE AR - Storytelling with Annotated 360° Images Presenter: Jamie Larsen	AM.Ed.8. Helping More Teachers Do GLOBE Through a Five-week Unit About Weather Phenomena Lead Presenter: Becca Hatheway
1:15 PM				
1:30 PM				
1:45 PM				
2:00 PM				
2:15 PM				
2:30 PM	BREAK	BREAK	BREAK	BREAK
2:45 PM	AM.Te.2. Mosquitoes From Space? Lead Presenter: Renée Codsi	AM.Ed.4. A Teacher's Journey from Field Campaign to IVSS Presenter: Angela Rizzi	AM.Cn.2. GLOBE Social Media Presenter: Autumn Burdick	AM.Ed.8. Helping More Teachers Do GLOBE Through a Five-week Unit About Weather Phenomena Lead Presenter: Becca Hatheway
3:00 PM			AM.Co.5. GLOBE Engaging Citizens in the Forecasting and Observation of	
3:15 PM	AM.Te.3. Online Learning: Promoting Technology and Science Learning Experiences for Students Well Beyond the Classroom Presenter: Lucretia Octavia Tripp	AM.Ed.5. GLOBE goes Into the Woods Presenter: Peter Schmidt	Mosquito Threats Lead Presenter: Kristin Wegner	AM.Ed.9. Hop Onboard the CSEP train! Presenter: Vicky Gorman
3:30 PM				AM.Ed.10. Experience of Uruguay with the implementation of the online GLOBE learning modules in Spanish Presenter: Andrea Ventoso

3:45 PM	AM.Sc.4. The European Air Quality Campaign Lead Presenter: Danielle de Staerke	AM.Ed.6. Three Phases of the GLOBE ENSO Student Research Campaign Presenter: Brian Campbell		AM.Ed.11. Sustainable GLOBE Program School Implementation: The T&T Experience Presenter: Henry Saunders
4:00 PM	AM.Sc.5. The need to participate in GLOBE student research projects: A way to connect GLOBE data to university research Presenter: Hameed Sulaiman	AM.Ed.7. Incorporating Elementary GLOBE in Your Classroom Presenter: Mikell Lynne Hedley	AM.Co.6. GLOBE Observer Land Cover and Updates Presenter: Holli Kohl	AM.Ed.12. Meteorology in the School. A proposal of teacher training through GLOBE protocols Lead Presenter: Claudia Romagnoli
4:15 PM	AM.Sc.6. Building the next generation of scientists through citizen science partnerships Lead Presenter: Rebecca Boger			AM.Sc.7. The Winter Berry Project Presenter: Terri Mynatt
4:30 PM	END	END	END	END

Session Descriptions:

Science

AM.Sc.1. How Cool Was the 2017 Eclipse, and What's Next? - Banquet Suite 1 - 11:00 am - 11:30 am

Presenters: Krister Weaver (kristen.l.weaver@nasa.gov); SSAI, Inc./NASA Goddard, Greenbelt, Maryland, USA; Kevin Czajkowski, Jessica Taylor

Summary: The panel will report on events surrounding the Total Solar Eclipse in 2017, including data collection via the GLOBE Observer app, outreach activities to the GLOBE community, and data analysis after the fact. Then we will lead a discussion about lessons learned and plans for the next eclipses in 2019 and 2024.

AM.Sc.2. A new soil moisture probe for the GLOBE program and citizen scientists - Banquet Suite 1 - 11:30 am - 11:45 am

Presenters: Peter Falcon (pcfalcon@jpl.nasa.gov), NASA, Jet Propulsion Laboratory (JPL), Pasadena, California, USA; Erika Podest, Narendra Das

Summary: A new soil moisture probe is being developed in JPL for citizen scientists. This probe is capable of making instant soil moisture measurements, and will replace the old and tedious soil moisture measurement protocol used for GLOBE. A phone app is also being developed that will operate the soil moisture probe and will upload the measured data to the GLOBE database.

AM.Sc.3. GLOBE Carbon Cycle - Banquet Suite 1 - 11:45 am - 12:00 pm

Presenter: Jennifer Bourgeault (usglobecc@gmail.com); Leitzel Center, University of New Hampshire, Durham, New Hampshire, USA

Summary: The updated Carbon Cycle materials, correlated to the U.S. Next Generation Science Standards, are posted to the GLOBE website. Earlier this year, the corresponding e-training was developed and tested by teachers. This workshop highlights learning activities, protocols, supporting materials and visualizations for carrying out carbon sequestration and biodiversity index research.

AM.Sc.4. The European Air Quality Campaign – Banquet Suite 1 – 3:45 pm - 4:00 pm

Presenters: Danielle de Staerke (danielle.destaerke@cnes.fr); CNES, Toulouse, France; Eric Abgrall, Dana Votápková, Sabrina Moore

Summary: Air Quality Campaigns are organized on a European scale in spring and autumn. Measures obtained by schools are posted on the GLOBE database to be shared and used in classroom projects. The presentation will explain what the students can do during the Campaigns and how they can share their findings.

AM.Sc.5. The need to participate in GLOBE student research projects: A way to connect GLOBE data to university research - Banquet Suite 1 - 4:00 pm - 4:15 pm

Presenter: Hameed Sulaiman (hanhameco@gmail.com); Sultan Qaboos University, Muscat, Oman

Summary: This presentation highlights the importance of GLOBE schools, teachers and students in taking initiatives to participate in student research projects. Data collected across the world by GLOBE students provides information on the status of the environmental segments in the local area/environment. It becomes highly meaningful when the students understand the implications of the data they collect. When students begin to realize that there is a connection between the data they collect through GLOBE schools and the data generated by scientists in their country, it creates a big impact and influence on the students in many ways. This presentation brings the evidence of this happening in GLOBE student research projects from caste studies (Oman, Saudi Arabia and Thailand), complementing related works carried out by the university researcher's in the respective countries.

AM.Sc.6. Building the next generation of scientists through citizen science partnerships - Banquet Suite 1 - 4:15 pm - 4:30 pm

Presenters: Rebecca Boger (beckyboger@gmail.com); Brooklyn College, City University of New York, Brooklyn, New York, United States; Russanne Low

Summary: Vector-borne diseases provide a compelling way to connect university students, GLOBE students, and citizen scientists. We showcase student research using spatial analysis tools and GO app, and discuss ways to promote interest in science and understanding of community health risks. You will obtain GIS/spatial analysis education materials for student research.

AM.Sc.7. The Winter Berry Project - Munster - 4:15 pm - 4:30 pm

Presenters: Terri Mynatt (temynatt@gmail.com); Yukon Flats School District, Venetie, Alaska, USA; Katie Spellman

Summary: Collaboration between a Scientist, a Teacher, and a community to create an opportunity for civilian science that provides educational opportunities, traditional cultural knowledge and scientific research, using GLOBE Protocols. We are located in a remote, isolated, rural village above the Arctic Circle in Alaska. We have been experiencing the effects of climate change and are pulling together our native indigenous cultural knowledge, with scientific research and data about Winter Berries. Berries are vital to the Alaska Native diet, and they are changing, we are collaborating to find out what is happening. Young students from the small village school, alongside Community members, a scientist and a teacher all go forward in the journey of collaboration with civilian science.

Technology

AM.Te.1. Acquire-Analyze-Apply (A³) - Banquet Suite 1 - 1:00 pm - 2:30 pm

Presenters: John D. Moore (jmoore@bcbridges.org); Institute for Earth Observations at Palmyra Cove, Palmyra, New Jersey, USA; Peter Dorofy

Summary: This workshop will focus on Assessing Data Literacy through satellite, remote sensing and computer visualizations and the use of geospatial technologies. GLOBE field protocols, aerial imagery through the use of drones and AEROKATS are used to "ACQUIRE" data sets. GIS and image analysis will all be used in "ANALYZE" stage. Participants will learn how to "APPLY" these skills in the development new satellite collaboration activities for ICESAT2 and Landsat.

AM.Te.2. Mosquitoes From Space? - Banquet Suite 1 - 2:45 pm - 3:15 pm

Presenters: Renée Codsi (rcodsi@gmail.com); University of Washington, Seattle, Washington, USA; Becky Boger, Rusty Low

Summary: In this hands-on workshop you'll use the NASA webportals EODIS Worldview and NEO to browse images and data that can be analyzed in conjunction with data collected using GLOBE protocols. We will explore relationships between GLOBE Observer Mosquito Habitat Mapper data and remotely sensed environmental data sets from space.

AM.Te.3. Online Learning: Promoting Technology and Science Learning Experiences for Students Well Beyond the Classroom – Banquet Suite 1 – 3:15 pm - 3:45 pm

Presenter: Lucretia Octavia Tripp (tripplo@auburn.edu); Auburn University, Auburn, Alabama, USA

Summary: Our presentation will focus on an interactive learning environment to share youth oriented content. The target users will be teachers and students. We developed a student-friendly web application to support the student and the teacher in understanding science content around the world. This project will aim to help develop them to be more citizen science literate.

Education

AM.Ed.1. Taking Data to the Next Level: "Water in Our Environment" and H2you Project - Banquet Suite 2 - 11:00 am - 11:30 am

Presenters: Laura Kubiak (lauramschetter@gmail.com); Toledo Public Schools and H2you Project, Toledo, Ohio, USA; Brian Campbell

Summary: NASA studies water many ways. The data that GLOBE users collect is vital, helping us to become more informed and engaged stewards for the water in our environment. Through the H2you Project, students and teachers take their data to the next level by sharing and comparing water stories.

AM.Ed.2. Engaging college students (pre-service, science and engineering) in GLOBE through undergraduate classes - Banquet Suite 2 - 11:30 am - 12:00 pm

Presenters: Kevin Czajkowski (kevin.czajkowski@utoledo.edu); University of Toledo, Toledo, Ohio, USA; Kevin Czajkowski, Janet Struble, Mark Templin, David Padgett

Summary: Educators have been working together to implement GLOBE at the undergraduate level. In this session, an update of undergraduate offerings will be shared. Educators will discuss ways of implementing GLOBE at the undergraduate level especially for pre-service education and science majors. The group will discuss future plans.

AM.Ed.3. Full STEAM Ahead with GLOBE Science – Banquet Suite 2 – 1:00 pm - 2:30 pm

Presenters: Jenn Paul Glaser (jennglaser@scribearts.org); Scribe Arts for Our Planet, Oceans and Fisheries/IGES, Boulder, Colorado, USA; Rusty Low

Summary: This hands-on workshop introduces you to STEAM (Science, Technology, Engineering, Art and Mathematics). Newly emerging STEAM pedagogies build creative capacity and divergent thinking in science

students. You'll return home with a robust activity that connects students with GLOBE science using the power of art and storytelling.

AM.Ed.4. A Teacher's Journey from Field Campaign to IVSS – Banquet Suite 2 – 2:45 pm - 3:15 pm

Presenter: Angela Rizzi (arizzi@olmc-school.com); Our Lady of Mount Carmel School and NASA, Newport News, Virginia, USA

Summary: A teacher will share how she guided students through the process of making observations to contributing to a GLOBE field campaign, working with a NASA mentor, and ultimately completing group projects which were submitted to the IVSS. Benefits for students will be discussed as well as lessons learned.

AM.Ed.5. Primary/Elementary: GLOBE Goes Into the Woods – Banquet Suite 2 – 3:15 pm – 3:45 pm

Presenter: Peter Schmidt (peter.schmidt@qc.cuny.edu); Queens College, New York, New York, USA

Summary: A review of a four year NOAA Environmental Literacy grant funded program: "Into the Woods." The focus of the program was using GLOBE protocols as part of a strategy to get New York City elementary school teachers to integrate use of the outdoors as a regular part of their teaching.

AM.Ed.6. Three Phases of the GLOBE ENSO Student Research Campaign - Banquet Suite 2 - 3:45 pm - 4:00 pm

Presenter: Brian Campbell (Brian.A.Campbell@nasa.gov); NASA Wallops Flight Facility, Wallops Island, Virginia, USA

Summary: The ENSO Student Research Campaign has been going on since March 2016. During this time, the campaign has gone through phases that increase data collection, data analysis, and collaboration. There are students and educators from across the world that are collecting data and making sense of the data through collaboration.

AM.Ed.7. Incorporating Elementary GLOBE in your Classroom – Banquet Suite 2 – 4:00 pm - 4:30 pm

Presenter: Mikell Lynne Hedley (mikell.hedley@utoledo.edu); University of Toledo, Toledo, Ohio, USA

Summary: Bringing Elementary GLOBE into your classroom using GLOBE materials and NASA resources is an easy way to meet your school's science standards. Building on student's curiosity and GLOBE protocols turn your young students into active science researchers. Science class becomes the class they look forward to each day.

AM.Ed.8. Helping More Teachers Do GLOBE Through a Five-week Unit About Weather Phenomena – Munster – 11:00 am – 3:15 pm

Presenters: Becca Hatheway (hatheway@ucar.edu), Lisa Gardiner, John Ristvey; UCAR Center for Science Education; Boulder, Colorado, USA

Summary: Learn about the GLOBE Weather middle school curriculum that's currently in development. Get an overview of this phenomena-based curriculum, participate in hands-on and data analysis activities, and provide input on how this curriculum can connect with other aspects of the GLOBE Program.

AM.Ed.9. Hop Onboard the CSEP Train – Munster – 3:15 pm - 3:30 pm

Presenter: Vicky Gorman (vgorman@medford.k12.nj.us); Medford Memorial Middle School, Medford, New Jersey, USA

Summary: Learn about the latest paradigm shift in United States science education. The Next Generation Science Standards call for a three-dimensional approach to science instruction. Each dimension works with the other two to help students build a cohesive understanding of science over time. Do you think we're on the right track?

AM.Ed.10. Experience of Uruguay with the implementation of the online GLOBE learning modules in Spanish - Munster - 3:30 pm - 3:45 pm

Presenter: Andrea Ventoso (andrea.ventoso@mvtoma.gub.uy); Ministry of Housing, Land Planning and Environment. National Directorate of Environment. Participation and Environmental Education Division, Montevideo, Uruguay

Summary: In 2017 the idea of translating and editing the e-learning modules to Spanish arose facing the fact that is a new and most practical way of training teachers. This allows participants access this scientific methodology easily and without cost. Till this moment, atmosphere and hydrosphere modules have been implemented.

AM.Ed.11. Sustainable GLOBE Program School Implementation: The T&T Experience - Munster - 3:45 pm - 4:00 pm

Presenter: Henry Henderson Saunders (henrysau@gmail.com); GLOBE Partner Trinidad & Tobago, Trinidad, West Indies, Trinidad and Tobago

Summary: Learn about the simultaneous training of teachers (min 3) and students (25 with leadership potential) in GP Protocols, Interaction with school management prior to training, determination of mode of implementation (Through an Environment Club or whole school participation), Overseeing of Peer Training, Acquisition of Equipment and Commissioning of GP and Sustainability activities.

AM.Ed.12. Meteorology in the School. A proposal of teacher training through GLOBE protocols - Munster - 4:00 pm - 4:15 pm

Presenters: Claudia Romagnoli (clauromag@gmail.com); GLOBE Argentina, Rosario, Santa Fe, Argentina; Viviana Sebben

Summary: A training project for primary teachers (1^o-7^ogrades) on topics related to Atmosphere, included in the curricular contents of Natural Sciences is presented. The objective is to train teachers so that they introduce your students (6-13 years) to observation and recording meteorological variables following GLOBE protocols. Finally, students do different school researches.

Community

AM.Co.1. Using Globe protocols to overcome the 'Not in my backyard' phenomenon - Park Suite - 11:00 am - 11:15 am

Presenter: Francis Wasswa Nsubuga (nwasswa@gmail.com); University of Pretoria, Pretoria RSA, Pretoria, South Africa

Summary: Some of Government projects have been delayed or stopped due to public opposition either directly in the form of local action groups, or indirectly by making the political climate unfavorable. The use of Globe protocols can play a pivotal role in public outreach and education pre-, during and post- implementation of such programs. The proposed approach intends to strengthen public involvement by monitoring the perceived effects and empowering the public using the least costs now and in the future while strengthening science. proposed approach will rely on a case study of Pilot Carbon Dioxide Storage Project (PCSP) in South Africa.

AM.Co.2. GLOBE at a US National Estuarine Research Reserve - Park Suite - 11:15 am - 11:30 am

Presenter: Peggy Foletta (peggyfoletta@gmail.com); Elkhorn Slough National Estuarine Research Reserve, Watsonville, California, USA

Summary: How one US National Estuarine Research Reserve has implemented the GLOBE Program.

AM.Co.3. GLOBE-Certified Teachers: How to increase their participation? - Park Suite - 11:30 am - 11:45 am

Presenter: Sara Mierzwiak (sara.mierzwiak@rockets.utoledo.edu); University of Toledo, Toledo, Ohio, USA

Summary: The University of Toledo has trained over 500 GLOBE teachers in yearly Professional Development institutes since 2001. This study will investigate teacher participation rates and attitudes towards GLOBE. Input from active and inactive teachers will be used to generate a needs assessment. Results will be used to improve our future PDs.

AM.Co.4. Developing a STEM Curriculum of Place for Teacher Candidates - Park Suite - 11:45 am - 12:00 pm

Presenter: Kevin O'Connor (koconnor@mtroyal.ca); Department of Education, Mount Royal University, Calgary, Alberta, Canada

Summary: Through our relationships with Aboriginal communities, we have a deeply held conviction that sustained deliberations on the connections between Aboriginal knowledge systems and place-based thinking can provide significant opportunities for reframing STEM teacher education. The purpose of our research is to investigate how teacher candidates' experiences in GLOBE environmental field studies with community partners can inform an integrated STEM practicum semester based on a curriculum of place.

AM.Co.5. GLOBE Engaging Citizens in the Forecasting and Observation of Mosquito Threats - Park Suite - 3:00 pm - 4:00 pm

Presenters: Kristin Wegner (kwegner@ucar.edu); The GLOBE Implementation Office, Boulder, Colorado, USA; Kia Henry, Lyn Wigbels

Summary: Through support from the United States Department of State, the GLOBE Implementation Office (GIO) is working with the GLOBE community on a Zika education and eradication project. In this panel presentation, the GLOBE community will share project updates and future plans.

AM.Co.6. GLOBE Observer Land Cover and Updates - Park Suite - 4:00 pm - 4:30 pm

Presenter: Holli Kohl ([holli.riebeek@nasa.gov](mailto:hल्ली.riebeek@nasa.gov)); NASA Goddard Space Flight Center (SSAI), Albuquerque, New Mexico, USA

Summary: GLOBE Observer recently released a land cover protocol based on the GLOBE Land Cover Protocol. This presentation will provide an overview of the new land cover component of the GO app. We will also discuss resources that GLOBE schools, partners, and coordinators can use in community outreach.

Communications

AM.Cn.1. GLOBE AR - Storytelling with Annotated 360° Image - Park Suite - 1:00 pm - 2:30 pm

Presenters: Jamie Larsen (jamie_larsen@terc.edu); TERC, Cambridge, Massachusetts, USA; Susan Oxnevad

Summary: Reaching out to communicate GLOBE success stories, especially through state-of-the-art 360° authoring tools that let GLOBE students create exhibitions of their learning about the local environment should be a central component of every GLOBE educator's toolkit. Join us to learn how to use Thinglink to tell your GLOBE story. Please bring a laptop or tablet to the workshop.

AM.Cn.2. GLOBE Social Media - Park Suite - 2:45 pm - 3:00 pm

Presenter: Autumn Marie Burdick (autumn.burdick@ssaihq.com); SSAI, Monrovia, California, USA

Summary: Presentation of GLOBE and GLOBE Observer's social media accounts and impact in order to raise awareness, interactions and answer questions.